

Critical Review of Maricha (*Piper Nigrum* Linn) in Brihat Trayi with Special Reference to Nighantus

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Abstract

Maricha (Black pepper) is considered the king of spices throughout the world due to its pungent taste and particular aroma and its medicinal value in day today life. Today, different parts of *Maricha* and their chemical components are used as drugs, preservatives, insecticidal, and larvacidal agent. *Maricha* has been used widely in traditional Indian medicine for a very long time. It has been known to Indian cooking since at least 2nd century BC and as a home remedy for relief from sore throat, throat congestion, cough etc. In *Ayurvedic classics*, it is recommended for various diseases due to *Agnimandya* (diminution of digestive fire) such as *Grahaniroga* (sprue syndrome), *Visuchika* (cholera), *Ajirna* (indigestion), *Jwara* (fever), *Arsha roga* (piles), *Atisara* (diarrhoea) etc. The renowned physician of Ayurveda, Maharshi Charaka, in olden period has described it as to be Shulaghana (anticolic/ analgesic), Deepniya (appetizer), Krimighna (vermicidal). Also, he has enumerated it as a Pranvaha srotas rasayan (rejuvenates respiratory system). Thus it is used frequently for the treatment of cough, corhyza, cold, asthma, hoarseness of voice, tuberculosis etc. It is used as a solo drug as well as an essential ingredient of numerous compound formulations and prescriptions of *Ayurvedic* medicine. *Maricha* is one of the ingredients of Trikatu. It is beneficial to increase the bioavailability of the drug. The objective of this article is to re-orientate the knowledge and information about *Maricha* in classical texts. This article highlights synonyms, pharmacodynamics, therapeutic actions and uses, and different formulations of *Maricha* as described in ancient Ayurvedic literature the Brihat trayi and the later text Nighantus etc.

Key words: Maricha, Brihat Trayi, Nighantus, Agni and Pramathi

Maricha (Black pepper) is the world's most traded spice. It is one of the most common spices added to the European cuisine and its descendants. It has been used since antiquity for both its flavour and as a medicine. Its Latin name is *Piper Nigrum*, and the family is piperaceae. *Piper* is known as Peperi in Greek which is derived from the Sanskrit word Pippali and nigra means black because its fruit is blackish grey in colour. *Maricha* (*Piper nigrum*) is a perennial climbing shrub native to the tropical and subtropical region of India, Malabar and Travancore coasts.

In the world there is an emerging interest to adopt the study of the traditional system and to flourish their potentials based on different healthcare systems. Proudly India has a heritage of

an ancient traditional medicine in the form of *Ayurveda*. A large number of herbal drugs are described in *Ayurveda*, *Maricha* is also one of them. *Maricha* was held in high esteem by the ancient physicians of India. It is one of the herbs mentioned in almost all *Ayurvedic* scriptures. The etymological derivation of *Maricha* indicates thus – “that which nullifies poison is called *Maricha*” or which neutralizes all types of toxins (Sharma, 2000, p.151).

The great Ayurvedic classics, *Charaka samhita*, *Sushruta Samhita*, and *Ashtanga Samgraha*, collectively known as *Brihat trayi* have been extensively quoted *Maricha* among their classification. Acharya Charaka 2nd century BC, extensively described it as an appetizer,

carminative, vermifugal or antimicrobial (Ch.su. 4/6, 15, 27, 45). He states that *Maricha* enhances the *Agni* i.e. digestive power and regulates the function of *Agni* (Ch.su. 27/298). *Agni* and *Agni vyapar* all belong to digestion, absorption from the intestine, circulation of nutrients in the blood and metabolism at the microlevel i.e. the cellular level. He recommended it for the treatment of *Aganidushati janit vikara* (GIT disorders) such as *aamdosh* (improperly digested food stuffs acting as toxins), *grahani* (sprue syndrome), *gulma* (abdominal mass) etc. Modern research has proved that *Maricha* and its active component piperine can stimulate the secretion of digestive juices, increases appetite and stimulates the digestive enzymes of pancreas and intestines and also increases formation of bile acid when orally administered (Srinivasan, 2007). Recently Shamkuwar *et al.*, (2012) have also found that Aqueous Black Pepper Extract (ABPE) produced a significant dose dependent antidiarrhoeal, antimotility, and antisecretory effect. The extract of *Marich* was found antibacterial to all enteric bacterial pathogen. (Dahikar *et al.*, 2010). Mode of action of its antimicrobial activity also has revealed by Vani & Laxmi (2010). During a study they have been found that black pepper altered the membrane permeability and inhibited the growth of gram positive bacteria *Staphylococcus aureus*, followed by *Bacillus cereus* and *Streptococcus faecalis* and gram negative bacteria *Pseudomonas aeruginosa* followed by *Salmonella typhi*, and *E. coli*.

Maricha has many important active constituents like piperine, piperidine, piperamide and piperene etc. which exhibit potent therapeutic functions. It has been shown that piperine can dramatically increase absorption of selenium, vitamin-B, beta-carotene and curcumin as well as other nutrients (Dudhatra *et al.*, 2012). Extracts from *Maricha* have been found to have antioxidant properties (Nahak & Sahu, 2011). And its anti-carcinogenic effects also reported (Nalini N. *et al*

2006). Piperine acts as a thermogenic compound and it enhances the thermogenesis of lipid and accelerates energy metabolism in the body and also increases the serotonin and beta-endorphin production in the brain (Malini, 1999). During an experimental study on mice Matsuda *et al.*, (2008) has found hepatoprotective activity of piperine.

MATERIAL AND METHODS

A detailed, critical review of the following classical texts was conducted for this study-

Brihat trayi

Charak samhita, *Sushruta Samhita*, *Ashtang Sangraha* and *Ashtang hridaya*

Nighantus

Dhanvantari nighantu, *Madanpal nighantu*, *Kaideva nighantu* and *Bhavaprakash nighantu* and *Raja nighantu*

Some other classical texts

Sharangdhara Samhita, *Bhavaprakash Uttrardha*, *Yogratnakar*, *Chakradatta*.

DISCUSSION

In the *Vedic* period, *Maricha* as a medicine was not so popular; however, in the *Samhita* period there was more awareness about the utility of *Maricha* and it was used extensively as a medicine. *Brihat trayi* have frequently quoted *Maricha* among their classifications of drugs. ***Brihat trayi***- The great Ayurvedic classics, *Charaka samhita*, *Sushruta Samhita*, and *Ashtanga Samgraha*, are all collectively known as *Brihat trayi*.

Maharishi Charaka has classified *Marich* as in four *Mahakashaya* (class).

1. *Dipaniya Mahakashaya* – Group of drugs act as appetizer (Ch.su. 4/6).

2. *Sulprashamana Mahakashaya* – Group of drugs act as anticollic (Ch.su. 4/45).
3. *Krimighana Mahakashaya* - Group of drugs act as vermifugal or antihelminthic (Ch.su. 4/15).
4. *Shirovirechana Mahakashaya* - Group of drugs act as adjunctive to clean out nasal-roots (Ch.su. 4/27).

Acharya Charak described pharmacodynamics of *Marich* as *katu* (pungent in taste), *laghu* (light) and *anushna* (not hot) and by these virtues it pacifies *kapha* and *vata dosha* (Ch.su. 27/298). He attributes many pharmacological actions to *Maricha* such as *shulahara* (antispasmodic), *deepan* (appetizer), *avrishya* (non aphrodisiac), *chedan* (expectorant) etc. Charaka indicates *Maricha* for the treatment of *kasa* (cough), *arsha* (piles), *grahani* (dysentery) and *kushtha roga* (leprosy). He specifically indicates *Maricha* powder with honey and *ghrita* for all types of *kasa* (cough) and *svarabheda* (hoarseness of voice) (Ch.ci.18/180).

Acharya Sushruta classified *Maricha* as *trikatu* Group of three pungent drugs- *Pippali*, *Marich*, *Sunthi* and *Pippalyadi gana* (Su.su. 38/22). He described the pharmacodynamics of *maricha* as the same as Charak but he attributed the description of *shweta maricha* (white pepper) and *Ardra* (fresh) *maricha*. He said also, that *Ardra* (fresh) *maricha* is *madhura* (sweet) in *vipaka*, and *guru* (heavy) and increases mucus secretion, while the dried one is pungent in taste, hot and light, it pacifies *kapha* and *vata* (Su.su. 46/224). He claimed specifically that *maricha* is beneficial for the eye (Su.ut. 18/100). For the treatment of eye diseases such as pterygium and night blindness, it is applied with honey. *Sodasha Varti* is one of the famous preparations of *maricha*, used topically in various ophthalmic diseases (Su.ut. 18/105).

Acharya Vagbhatta prescribed it especially for *Pravahika* (dysentery) and *Naktandhya* (night

blindness). He indicated fine powder of *maricha* fruits with water for treating *Jirna grahani roga* (chronic colitis) (Bapalal, 2005, p.354).

Brihatrayi have quoted another variety of *Maricha* i.e. *Sweta marica*. Acharya Sushruta described the *shweta maricha* as neither hot nor cold and as acting an eye tonic and better than *Maricha*. *Dalhana* the commentator of *Sushruta*, state that *Sweta maricha* is nothing but *Sigru bija* i.e. seed of plant *M. pterygosperma*. *Thakur ji Balbanta singh*, state that *Sita Maricha* is either the *Sigru bija* or the decorticated and dried fruits of *Maricha* (Bapalal, 2005, p.354).

Acharya Chakrapani (10th century) frequently used *maricha* for the treatment of *arochaka* (anorexia), *atisara* (diarrhoea), and *kasa* (cough).

Acharya Sharangdhar (13th century) has quoted *Maricha* as an example of the drug which performs the action of *Chedana* i.e. eliminates the accumulations and *Pramathi* i.e. forcefully expel out of *doshasa* and *mala* from channels (*Poorva Khanda*- 4/9, 23). He indicated *Maricha* for the treatment of periodic fever, headache, urticaria (*Madhyama Khanda*-1/10, 17, 20). *Sharangdhar* introduced various formulations of *Marich*, one is *Marichdi churna* (powder) especially indicated for the treatment of chronic dysentery, splenomegaly, dyspepsia, piles and colic (*Madhyama Khanda*- 6/54-55). *Trikatu churna* is beneficial for hyperlipidemia, leprosy, diabetes, and cold (*Madhyama Khanda*- 6/12). *Marichdi Gutika* (tablet) is used to alleviate of all types of *kasa* (cough) and *Vyoshadivati* is another famous formulation for shavas (asthma), *kasa* (cough), *pinas* (chronic cold) (*Madhyama Khanda*- 7/13-15, 22-23). *Marichdi Taila* (oil) for all types of skin-diseases including leprosy. (*Madhyama Khanda*-9/148-152). And today it has also proved that *Maricha* may be helpful in treating vitiligo (Lin *et al.*, 2007).

Vaidya Vrinda madhava indicated *marich* powder mixed with jaggary to treat acute cohryza (Sharma, 2004, p.291). A new indication of usefulness of *marich* in fracture has been given in “*Yogratnakar*”, a famous text of medicine from the 15th century. *Shadushana*, *Aganikumara rasa*, *marichadi churna* and *marichadi gutika* are some other important formulations of *maricha*, described by *Acharya Bhavaprakash* (Pandey, 2012, p.10-11).

Maricha in Nighantus:

Nighantus are the classical texts of *Ayurveda* which give a detailed account of various types of medicinal plants, these are like the *Ayurvedic* pharmacopoeia. The era of *Nighantu* is very important from the aspect of ‘Systematic understanding of the drugs’ because the authors of *Nighantu* tried to give very detailed descriptions of the drugs by introducing their synonyms and Guna-Karmas as well.

According to *Dhanvantari Nighantu* (10th century) *Maricha* is pungent and bitter in taste and *jantusantan-nashana* (larvacidal) (Shatapushpadi varga, 78-79). In *Madanpal Nighantu* (14th century) *maricha* is described as *laghu* (light) *guna*, *atiushna* (hot) *virya* and indicated in the treatment of *kushtha* (leprosy), *gulma* (colic), *arsha* (piles), *pliharoga* (disorders of spleen), and *prameha roga* (diabetes) (Shunthyadi Varga, 10-11). *Acharya Kaideva* (13th century) gives a detailed account of *Ardra* and *Shushaka* which are both varieties of *maricha*. According to him *Ardra maricha* (wet/green pepper) as *guru* (heavy), *madhur vipaki*, and *kaphakari* (alleviate kapha dosha), while *Sushaka marich* is *ushna* (hot), *katu* (pungent), *tikshna* (sharp), *laghu* (light) and *avrishya* with therapeutic action *dipan* and *rochana* (appetizer), *chedan* (expel out of mucous), *shulahara* (anticholic), *shavasahara* (relief dysponea), *krimighana* (wormicidal), *soshahara*, pacifies the *vata* and *kapha dosha* (*Aushdhi Varga*, 1161-

1164). *Acharya Bhavaprakasha* (16th century) seems to follow *Kaideva Nighantu*, he states the same properties of *shushaka* (dry) *maricha* as in *Kaideva Nighantu*. But he had not described *Ardra* (fresh) *maricha*. *Bhavaprakasa* states that *maricha* is useful to treat indigestion, intestinal parasites and disorders of respiratory system (*Haritakyadi Varga*, 60). He indicated fine powder of *maricha* as a remedy for in all types of *pinasa roga* (chronic rhinitis). Only in *Raja nighantu* (17th century) *Maricha* is described as *hridya* (good for heart). *Acharya Narhari*, author of *Rajanighantu* introduced a total of seventeen synonyms for *maricha* and seven synonyms for *shweta maricha* as well. According to him *shweta maricha* is pungent in taste, hot and better than *krishna maricha*. He indicated *shweta maricha* as a remedy for eye diseases and a good *Rasayana* (rejuvenator). Nahak Gaytri et. al. has evaluated high antioxidant activity in *Piper nigrum* extracts as well. *Acharya Narhari* also indicated it for the treatment of *Bhootbadha* (psychological disorders) (*Pippalyadi varga*, 1). Wattanathorn (2008) observed an interesting study of piper on mood and cognitive disorders. He found that piperine possessed anti-depression like activity and cognitive enhancing effect. Therefore, piperine may be served as the potential functional food to improve brain function.

Synonyms of Maricha in the Classical texts:

In the classic texts the descriptions of herbs are available in the form of various synonyms which are based on their specific characteristics with reference to habitat, pharmacogony and pharmacology of that particular plant. There are many synonyms of *Marich* described in various *Nighantu* which denotes its different characteristics. Sharma (2000) has explained synonyms of *Marich* are described below (p.151):

Vellija: Fruit which grows on a climber.

Krishna: Because fruits are black when dried.

Vritta phala: Round fruits

Shirovrinta: Fruit with a minute cap on the top.

Ruksha: Having rough property

Tikshana (Sharp): It is *tikshana* in property

Ushna: It has (Ushna virya) hot potency.

Katuka: It is Katu (pungent) in taste.

Yavaneshta: it is in great demand by yavan (foreigners)

Dharampattana: It is an important item for export and as such found in ports.

Viray: It is a potent drug.

Kaphavirodhi: Alleviate cough thus used in disorders caused by kapha dosha

Jantughna: It is able to destroy organisms

Shakanga: It is also one of the spices.

CONCLUSION

A careful and critical study of the classical Ayurvedic texts shows that *Maricha* is undoubtedly a very important and widely used herb in Ayurveda since ancient time. It is a plant of high commercial and economic importance and it is used in various formulations of Ayurveda as well as in modern science and medicine. The fruits of *maricha* have great medicinal value it is used both internally as well as externally. It reconciles the digestive and respiratory systems. *Maricha* is pungent in taste and pungent in the post digestive effect and has hot potency. It alleviates *kapha* and *vata dosha*, it possesses light and sharp attributes. It is the best appetizer. The therapeutic actions of *Maricha* described in different classics have been clinically proven today. Ahmad *et al.*, (2012) has reported in a review study that *Maricha* possesses immunomodulatory, antiasthmatic, hepatoprotective, hypocholesteremic, anti-inflammatory antibacterial, anti-colon toxic,

antidepressant, antifungal, anti-diarrhoeal, antimutagenic, anti-metastatic, antioxidative, antispasmodic, and ciprofloxacin potential activity etc.

In Briha trayi and Nighantus, Marich is specifically described as krimighan or jantunashan (antimicrobial) or even jantusantannashan (larvacidal) all these terms denote for its antimicrobial activity and recently many researches proved it as a good bio-enhancer and antibacterial (Vani & Laxmi, 2010). The facts which had been described in classics so many years back about the *Maricha*, are being prove clinically with the help of modern technology and re-establish today. The knowledge of our ancestors about herbal medicine was very vast and accurate.

Synonyms in different Nighantus:

Synonyms	DN	MP	BN	RN	KN
<i>Maricha</i>		+	+	+	+
<i>Malin</i>		+			+
<i>Shyam</i>	+			+	+
<i>Vellaja</i>			+	+	+
<i>Tiksanabhusanam</i>					+
<i>Yavaneshta</i>	+				+
<i>Shirovrinta</i>	+			+	+
<i>Suvritta</i>					+
<i>Charmabandhana</i>					+
<i>Palita</i>	+			+	
<i>Shakanga</i>				+	
<i>Vallija</i>	+	+		+	
<i>Ushana</i>	+		+	+	
<i>Kolaka</i>	+				
<i>Dharampattan</i>	+		+	+	
<i>Krishna</i>	+		+		
<i>Kola</i>				+	
<i>Shyambhushana</i>	+				
<i>Vrittaphala</i>				+	
<i>Veer</i>				+	
<i>Ruksha</i>				+	
<i>Sarvamhita</i>				+	
<i>Krishna</i>				+	
<i>Kaphavirodhi</i>				+	
<i>Katuka</i>				+	
<i>Tikshana</i>		+			

Dhanvantari Nighantu (DN), Madanpal Nighantu (MP), Bhavaprakash Nighantu (BP), Raja Nighantu (RN), Kaideva Nighantu (KN)

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- Charaka Samhita, Chikitsa Sthana (20/193)
- Charaka Samhita, Sutra sthana (27/298)
- Charaka Samhita, Sutra sthana (4/15)
- Charaka Samhita, Sutra sthana (4/27)
- Charaka Samhita, Sutra sthana (4/45)
- Charaka Samhita, Sutra sthana, (4/6)
- Dhanvantri Nighantu, Shatapushpadi varga (78-79)
- Kaideva Nighantu, Aushdhi Varga (1161-1164)
- Madanpal Nighantu, Shunthyadi Varga (10-11)
- Raja Nighantu, Pippalyadi varga (1)
- Sharangdhara Samhita, Madhyama Khanda (1/10)
- Sharangdhara Samhita, Madhyama Khanda (1/17)
- Sharangdhara Samhita, Madhyama Khanda (1/20)
- Sharangdhara Samhita, Madhyama Khanda (6/12)
- Sharangdhara Samhita, Madhyama Khanda (6/54-55)
- Sharangdhara Samhita, Madhyama Khanda (7/13-15)
- Sharangdhara Samhita, Madhyama Khanda (7/22-23)
- Sharangdhara Samhita, Madhyama Khanda (9/148-152)
- Sharangdhara Samhita, Poorva Khanda (4/23)
- Sharangdhara Samhita, Poorva Khanda (4/9)
- Sushruta Samhita, Sutra Sthana (18/105)
- Sushruta Samhita, Sutra Sthana (18/100),
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